

# How does your farm rate on cow comfort?

by Kathy Zurbrigg

**H**OW are today's cows fairing in tie stall barns? To determine the answer to that question, we conducted a survey to examine the relationship between tie stall size and cow welfare. More than 18,000 milking cows on 317 tie stall dairy farms were scored for problems including lameness, injury, and dirtiness. The percentage of each herd affected with the problem was determined, and then farms were grouped from the best to the worst for each category.

Since stall design plays such a key role, measurements such as stall length, width, tie rail height, and tie chain length also were recorded. Again, farms were grouped from best to worst, based on size requirements for an "average-sized" 1,550-pound Holstein cow. This information is summarized in the chart.

## What is normal?

Many producers do not often visit other farms, making it difficult for them to gauge what a "normal" rate of lameness or injury is. The chart was created to encourage producers to score their cows and compare themselves to other dairies. Farms with scores that fall within the shaded areas have reason to be concerned — improvements to cow comfort are needed.

We also tried to discover which aspects of tie stall design affect dairy cow lameness, injury, and cleanliness. Certain stall dimensions seemed to lead to each of these problems. Although these problems often have many components, making changes to stall dimensions should improve cow comfort.

Specific stall sizes should be based on the size of the cow. Equations to determine appropriate electric trainer placement and stall dimensions can be found in a fact sheet by Dr. Neil Anderson on the Ontario Ministry of Agriculture and Food's website at: [http://www.gov.on.ca/OMAFRA/english/livestock/dairy/facts/info\\_tsdimen.htm](http://www.gov.on.ca/OMAFRA/english/livestock/dairy/facts/info_tsdimen.htm).

## Signs of problems . . .

Hock problems are often the most noticeable cow comfort issue. Hock lesions include hair loss, swollen hocks, and open or scabbed wounds. All can result from small stalls and a restriction on the space a cow has to get up and lie down. Short tie chains and stalls with a poorly positioned electric trainer also caused cows to have more hock lesions. Lengthening tie chains and ensuring the electric trainer has proper height and forward location (4 inches above chime and 47 to 48 inches forward of gutter on 70- to 72-inch stall bed) give cows more room to perform natural movements in rising and lying down.

While the current study did not look at stall surface characteristics, making sure that the stall surface is not slippery and is well-cushioned also cuts down on hock injuries. This may involve replacing old, worn-out mats and mattresses and using more bedding.

Both tie stall and free stall cows can have abrasions on the back of the neck. In tie stalls, neck lesions were found to be related to the height of the tie rail, with cows having more lesions if they had a tie rail between 39 and 45 inches high. These lesions are caused by the cow hitting her neck on the underside of the tie rail while rising or eating, and the damage can range from hair loss to large wounds. Raising the tie rail above 45 inches for the cow and adding more bedding to improve her footing should reduce the number of neck lesions.

Broken tails are also a concern. Most often they come from poor cattle handling. Using the "tail twist" (grabbing the tail midshaft and twisting) to get a cow to rise or move can result in broken vertebrae in the tail. This causes pain to the cow, and, depending on the location of the break, can limit tail motion. Farms that had high numbers of broken tails also had more cows with dirty udders and hind limbs. This may be an indicator of a poor attitude towards cow care. Other methods of restraint **must** be used.

## Small stalls cause lameness . . .

Lameness is also an important cow comfort issue, yet often overlooked in tie stall herds. To provide relief from sole pain and/or the pressure of overgrown claws, cows will rotate the affected hind feet outwards to transfer weight from the outside to inside claw. Short stalls cause more claw problems. Recent studies also have shown cows that spend a lot of time standing are more prone to claw health problems and lameness.

Lengthening the stalls will encourage cows to spend more time resting and allow them to lie straight in the stall with their whole body on the stall bed. This should reduce lameness. Cows that

stand in the gutter also have more hoof problems in the hind feet. Keeping the hind claws drier by adding more bedding and cleaning stalls more frequently should reduce lameness.

While dirty cows are not directly a cow comfort issue, in this study, manure on the hind legs and udder were linked to higher bulk tank somatic cell counts (BTSCC). To keep hind limbs cleaner, give cows more room to rise and lie down in an unrestricted manner. Lengthening the tie chain, hanging the electric trainer in the proper position, and increasing the stall length all help improve hind leg and udder cleanliness. The addition of more bedding and cleaning stalls more than once a day also keeps cows cleaner.

As well as improving cow comfort, the study results suggest that there are economic benefits to making these recommended stall changes. Wider stalls lead to lower bulk tank SCC and more milk shipped per cow. Wider stalls allow cows to rest comfortably and spend more time lying down, both important for improved health and production. Use the chart to assess cow comfort on your farm and indicate areas where changes should be made to improve both the welfare and productivity of the herd. 

## Score your farm for cow comfort

Score every milking cow on your farm for each of the problems listed below. Take the number of affected cows for each problem and turn it into a percent value by dividing the number of affected cows by the total number of milking cows scored. For each problem area find which group your farm fits into. Example: If the percentage of cows that have hock wounds is 3 percent, then you would be in Group 2 for hock wounds.

\*Boxes that are shaded indicate values that are considered too high for that problem.

Problems	Best 20%	2nd best 20%	Middle 20%	2nd worst 20%	Worst 20%
Swollen hocks	0 - 3.8%	3.9 - 8.8%	8.9 - 15.4%	15.5 - 25.7%	25.8 - 60.8%
Hock hair loss	0 - 14.8%	14.9 - 26.9%	27 - 41.7%	41.8 - 53.1%	53.2 - 81.1%
Hock wounds	0 - 1%	1.1 - 3.4%	3.5 - 6.9%	7 - 12.2%	12.3 - 100%
Neck lesions	0%	0%	0 - 1%	1.1 - 4.1%	4.2 - 47.8%
Broken tails	0%	0%	0 - 1%	1.1 - 5%	5.1 - 50%
Rotated hind claws	0 - 6.7%	6.8 - 14.6%	14.7 - 22%	22.1 - 34.2%	34.3 - 73.7%
Arched backs	0%	0 - 1%	1.1 - 2.6%	2.7 - 5.6%	5.7 - 21.4%
Dirty udders	0%	0 - 1%	1.1 - 2.7%	2.8 - 6.9%	7 - 48%
Dirty hind limbs	0 - 2.9%	3 - 8.7%	8.8 - 18.2%	18.3 - 36.1%	36.2 - 94.4%

Measure 1 or 2 of your milking cow stalls. For each measurement find which group your farm fits into.

Stall sizes	Best 20%	2nd best 20%	Middle 20%	2nd worst 20%	Worst 20%
Stall length	73 - 86 in	71 - 72 in	69 - 70 in	65 - 68 in	54 - 64 in
Stall width	52 - 57 in	49 - 51 in	47 - 51 in	45 - 46 in	36 - 44 in
Tie rail height	43 - 52 in	40 - 42 in	38 - 39 in	36 - 37 in	30 - 35 in
Tie chain length	27 - 45 in	23 - 26 in	21 - 22 in	19 - 20 in	14 - 18 in

\*\*Ideally, stalls should be sized for the stature of the cow — as an example above farms are ranked based on stall dimensions appropriate for an average size Holstein (1,550 lbs/700 kg) rump height of 60 in (152.5 cm) and hook bone width of 26 in (66 cm).

The author is in veterinary science with the Ontario Ministry of Agriculture and Food, Fergus.